M. V. 1 (Copy)

Treasury Department
Office of the Director of the Mint
Washington. D.C Augst. 6. 1873

Sir.

The report of Prof Rodgers in reference to the Assaying and reporting of Silver ingots for coinage, and the experiments in connection therewith, recently made at the Mint under his supervision, concludes with the following recomendations.

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That Silver Ingots for coinage should be reported at from 898.25 to 899.25. average 898.75.

That assays of finished Silver Coin should be made at staled periods. say once a month, in a manner similar to the Annual Assay, and upon an amount sufficient to give the average for such a period.

That when any irregularities have shown themselves in assays of Gold Ingots, similar periodic check assays of the Gold Coins should be made.

That when there is any reason to suspect that any anomalous condition exists in the Silver Bullion for Ingots, granulations for assays should be taken intermediate between 1 and 2. more or less numerous.

That in the process of annealing with

with a view to secure uniform oxidation of the surface of the Blanks, the temperature of the Annealing furnace and the time of their exposure to the heat should be as uniform as practicable.

That in the process of pickling the Blanks, the strength of the liquid and the time of immersion should be allowed to vary as little as possible, and should any blanks show slowness in whitening, they should be removed, rather than prolong the operation upon the remainder.

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The experiments detailed in the Report, appear to show conclusively that Silver Ingots assayed and reported from 898.25 to 899.25 and averaging 898.75 will when made into Coin by the processes now in use at the Mint, return coin 900 fine, or very nearly so; and that the increase in fineness is due mainly to the dissolution of copper which takes place to some degree in the pickling of the Blanks.

In view of these results, the

question

question presents itself, whether we shall adopt the recomendation of Prof Rodgers, or abandon the pickeling operation, as was done a year or two since in the British Mint.

For the present I am of the opinion that we had better adopt the recomendation of Prof Rodgers, taking care to test the result by such assays of coin as may be necessary to determine the certainty of its correctness and safety.

Before however prescribing it as a Regulation, I desire the opinion of yourself, and the Assayer on the subject.

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It appears to me that there cannot be the slightest danger from the adoption of the proposed Regulation, especially as we have the means at hand of testing the result as frequently as may be necessary.

As soon as it may be convenient to do so, the propriety of discontinuing the process of pickling the blanks, and the substitution of some other process or processes, will be

be considered.

The other recomendation of Prof Rodgers in relation to annealing and pickling of the Silver Blanks. appear to be judicious, and will be hereafter observed.

Whilst the experiments and investigations relative to the assaying and other operations connected with the Silver coinage are conclusive and satisfactory, those in relation to the anomalies presented in the melting and assaying of Gold coins re-coined, are not to my mind satisfactory. If due to the iron contained in the copper used for alloy, or tin from small parcels of the bronze alloy, as suggested by Prof Rodgers. I cannot understand why the same results should have not appeared in the assay of at least some of the bars resulting from the melt of Gold coins at the annual Assay trials, which has never, so far as my knowledge extends, been the case even in a single instance.

Assuming, as I feel confident we may safely do, that the coins tested at the Annual Assay trials fairly represented the deli-

-eries from

from which they were taken, and that the assays of such coins were fairly and skilfully conducted, the supposition that the variation in fineness, and other peculiarities are due to tin or the iron contained in the copper introduced, as suggested by Prof Rodgers, is not sustained, and we must therefore look to other causes for a satisfactory solution of the questions at issue.

By way of ~~future~~ further examination of this important subject, I make the following suggestions, and inquiries.

1st. If the gold coins when first issued contained small percentage of base metals other than copper, and the pieces taken therefrom presented no evidence of such contamination at the Annual Assay: may it not be possible that the change in character of the coins takes place from chemical or galvanic action, sufficient after several years to account in some degree for the anomalies referred to? I merely make this as a suggestion, and would be glad if Prof Booth would consider it.

2d. The coinage of Gold was no doubt continued at the New Orleans Mint several months after that Institution ceased to operate under the authority of the United States, may not the standard under that irregular issue have been so degraded, that when added and commingled with the legal coin, as to account in part for the difficulties under consideration?

In order to test this point, I suggest that all New Orleans coinage of 1861, hereafter received, be melted separately, and the fineness and character of the resulting Ingots noted.

3d. The anomalies presented may have been due to the presence of counterfeit or filled pieces, particularly the latter. With a view to obtain information on this point, it is directed that when large sums of gold coins are received for recoinage, that as many pieces be cut into ~~one~~ two or more parts as time will allow, and the result noted.

I would also select from parcels about to be melted for re-coinage, a considerable number of pieces of the coinage of the Philadelphia

Mint, and melt and assay them separately, with a view to ascertain whether the trouble arises from the cause suggested by Prof Rodgers, viz: the presence of tin, which could only occur at your Mint- the bronze coinage not being executed at any other Mint.

I would further add that it is of the first importance that the melting of all gold deposits preliminary to assay, and which are not intended to be afterwards subjected to special refining, should be conducted in such a manner as to render certain the elimination of all base metals contained; and that when bullion is subjected to special processes, its freedom from base metals and foreign substances should be clearly ascertained before it is made into ingots, or added to other bullion to be made into ingots, by such tests as may be necessary for that purpose.

In making the foregoing observations, and suggestions, I have done so with a due regard to the highly respectable authority of Prof Rodgers, whose ability,

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learning, and zeal, and faithfulness cannot be too highly commended, and who with his usual frankness, states that he does not regard the questions at issue respecting the Gold Coinage as fully determined.

The correct solution of the question under consideration is very important, and I have to request that yourself and the operative Officers of the Mint will continue the investigation, not only as herein suggested, but also in any other way that your united councils may deem best to secure the end in view.

You will please furnish a copy of this communication to the Assayer, Melter & Refiner, and Coiner.

A copy of the Report of Prof Rodgers will be completed in a day or two, and sent to you.

Very Respectfully
(Signed) A. R. Linderman
Director

Hon
James Pollock,
Supt U.S. Mint
Philadelphia.